



Indiana State Police Laboratory Division

2013 ANNUAL REPORT

MISSION:

*"TO PROVIDE A
MAXIMUM OF
CRIME
LABORATORY
SERVICE FOR
ALL BRANCHES
OF THE
CRIMINAL
JUSTICE SYSTEM
WITHIN THE
RESOURCES
PROVIDED."*

GOAL:

*TO DEVELOP
EVIDENCE
COLLECTION
AND
ANALYTICAL
RESOURCES IN
A BALANCED
FASHION.*

The mission of the Laboratory Division is "to provide a maximum of crime laboratory services for all branches of the criminal justice system..." The primary service it provides is the delivery of timely and reliable information. Is the white powder cocaine? Is this red stain human blood? Was that bullet fired from this gun? This was the type of information the Laboratory developed and issued reports on the nearly 18,000 cases completed in 2013.

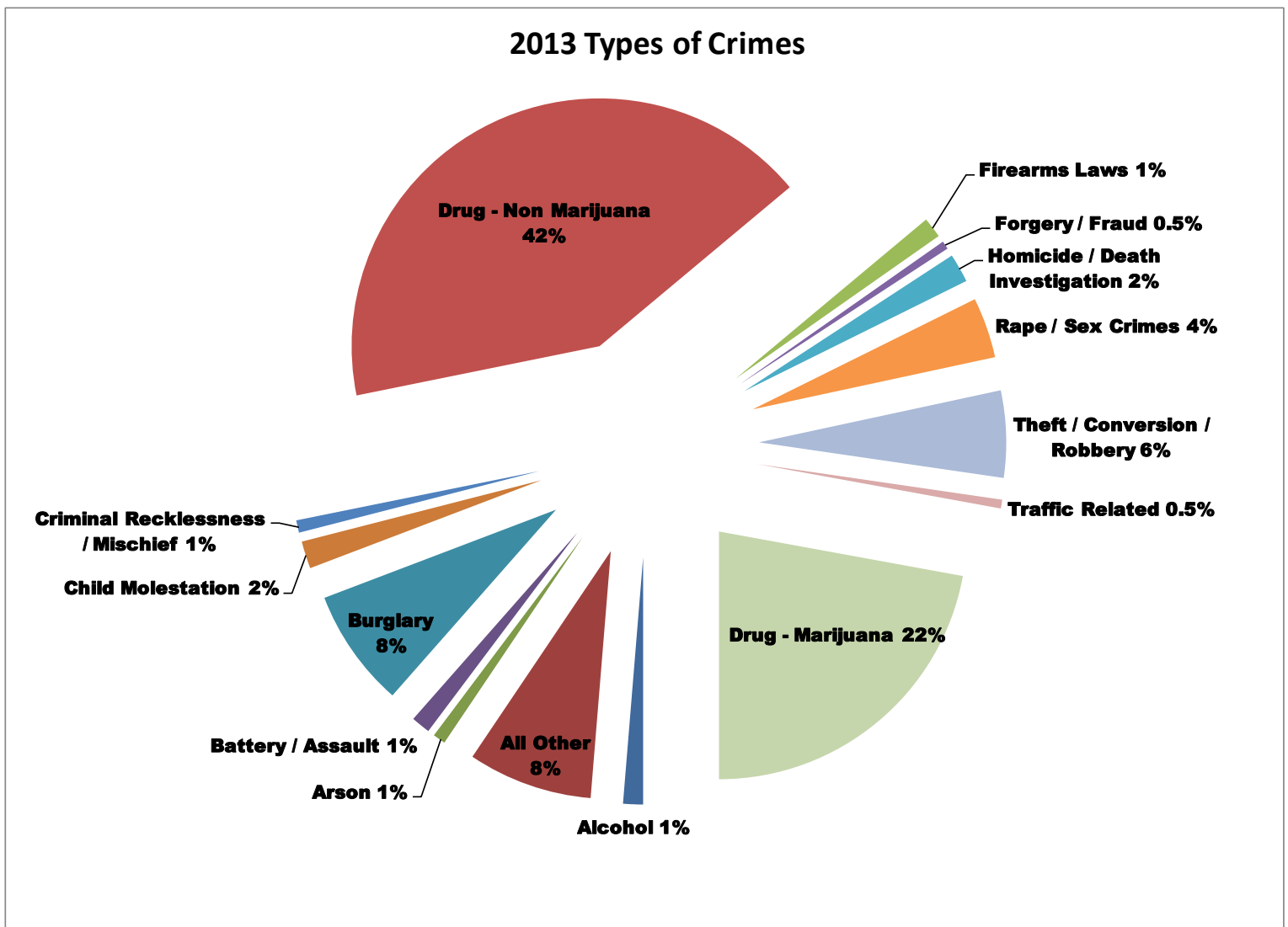
The Laboratory Division also provides its customers, at no cost, Indiana Law Enforcement Academy (ILEA) certified continuing educational training. In 2013 laboratory staff conducted more than 180 training classes on various forensic science topics. In attendance were more than five thousand "customers/students".

The Laboratory Division is organized into five sections: Biology, Chemistry, Comparative Science, Crime Scene and Field Support, and Management and Administration. The Biology Section consists of Serology, DNA, and CODIS (Combined DNA Index System). The Chemistry Section consists of the Drug Unit and Microanalysis Unit. The Comparative Science Section consists of the Firearms Unit (including Integrated Ballistics Identification System or IBIS), Latent Print Unit (including Automated Fingerprint Identification System or AFIS), Photography Unit, and Document Unit. The Crime Scene and Field Support Section consists of the Polygraph Examiners and Crime Scene Investigators. The Management and Administration Section consists of administrative and support personnel.

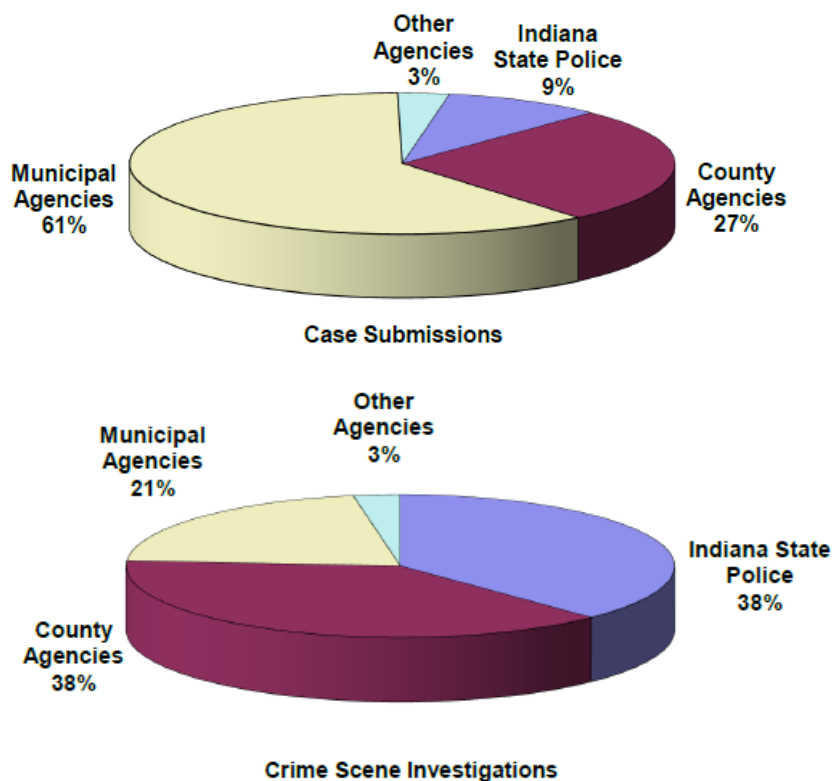
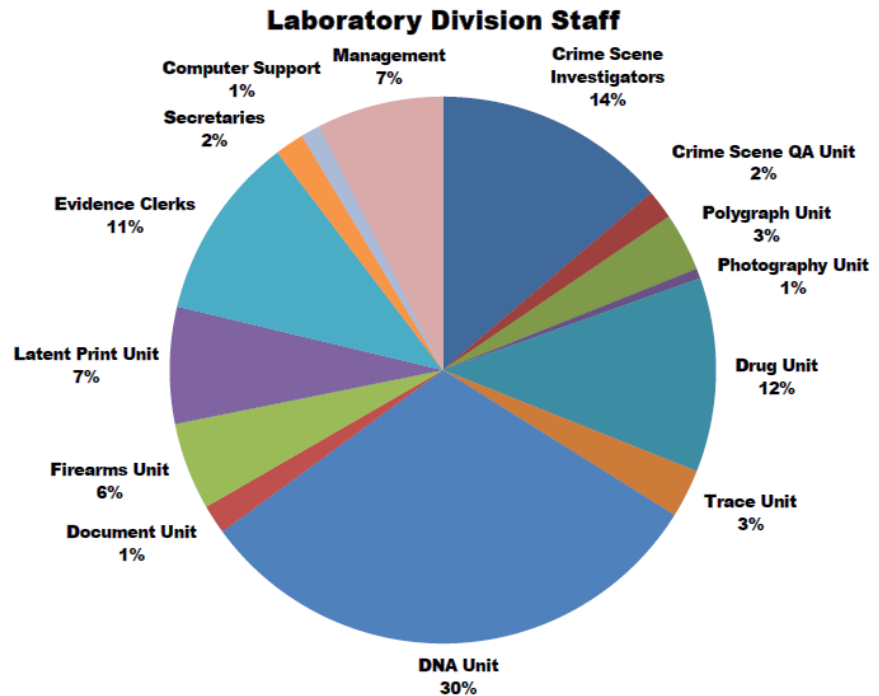
The Laboratory Division accepts evidence associated with active criminal investigations for analysis at four laboratory locations - Indianapolis, Lowell, Fort Wayne, and Evansville. The four laboratories have been accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) since 1991. In 2012, the Laboratory Division became ASCLD/LAB accredited under the International Organization for Standardization (ISO) 17025 program.

The four laboratories provide forensic services at no charge to federal, state, county and local agencies throughout the State of Indiana. These services include tests for firearms and tool mark comparisons; identification of controlled substances; trace examinations; questioned documents; latent prints; forensic biology/DNA and maintenance of the state's DNA database. The Division also provides polygraph examinations and crime scene investigations upon request. The Laboratory Division received 18,601 new cases for analysis in 2013. Crime Scene Investigators responded to and worked 871 investigations involving 1,197 different crime scenes. The Polygraph Unit conducted 736 polygraph tests in 2013.

Below is a graph of the types of crimes for the laboratory cases analyzed in 2013.



At the end of 2013, the Laboratory Division employed a staff of 174 individuals providing analytical and support services. The chart to the right details the apportionment of the staff. Approximately 90% of the Laboratory Division personnel are directly involved in collecting, maintaining, and/or analyzing evidence. Of those directly analyzing evidence, 62% are certified by a forensic organization. The last two pages of this report provides the Division's organizational structure and contact information. The Division's personnel are active in the forensic community with multiple individuals holding office or working on committees of numerous forensic organizations.



Analytical services (DNA, Drugs, Trace, Firearms, Latent Prints, and Documents) and support services (Crime Scene Investigation, Crime Scene Training, Polygraph, and Photography) are provided to contributors from state, county, municipal, and federal agencies. As shown in the "Case Submissions" chart, the majority of cases for analysis are submitted from municipal agencies. The "Crime Scene Investigations" chart shows that over half of the crime scene investigations were completed for local and county agencies.

Regional Laboratories

All four laboratories provide analysis in DNA, Drugs, Firearms, and Latent Prints. Trace Examinations and Document Analysis are only available at the Indianapolis Regional Laboratory.

The 2013 case submissions at the four regional laboratories are shown in the table below.

	<i>Evansville</i>	<i>Fort Wayne</i>	<i>Indianapolis</i>	<i>Lowell</i>	<i>Totals</i>
DNA	192	383	3145	633	4,353
Documents	0	0	37	0	37
Drug	1282	1697	5705	2384	11,068
Firearms	178	677	493	126	1,474
Fingerprint	174	370	638	229	1,411
Trace	0	0	258	0	258
Totals	1,826	3,127	10,276	3,372	18,601

The 2013 case completions at the four regional laboratories are shown in the table below.

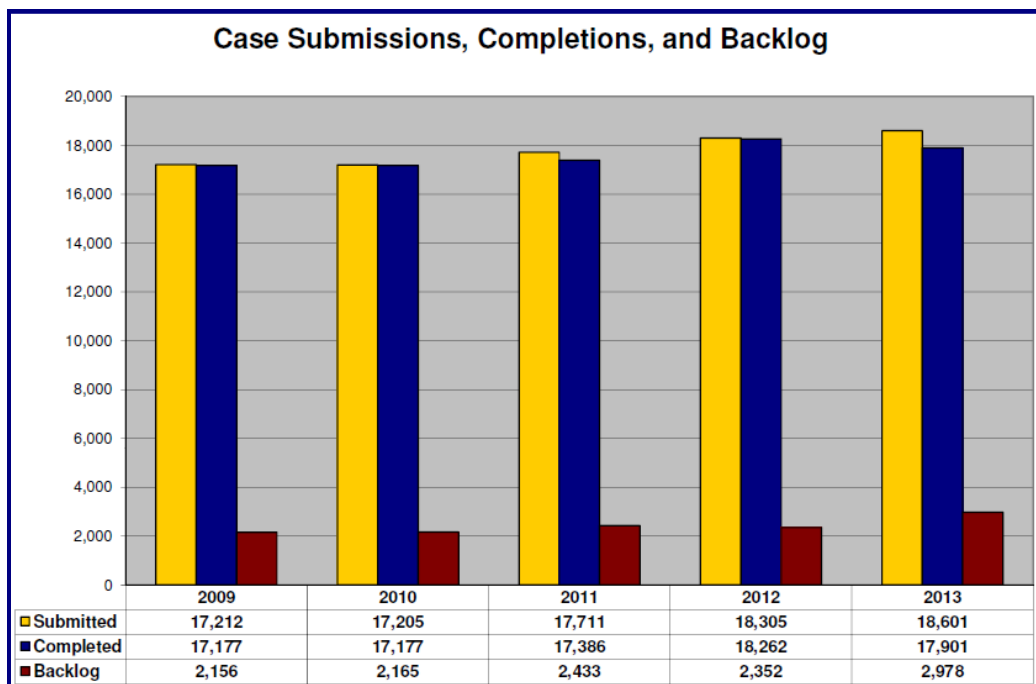
	<i>Evansville</i>	<i>Fort Wayne</i>	<i>Indianapolis</i>	<i>Lowell</i>	<i>Totals</i>
DNA	185	371	2989	621	4,166
Documents	0	0	32	0	32
Drug	1415	1650	5438	2259	10,762
Firearms	187	606	466	117	1,376
Fingerprint	135	271	665	235	1,306
Trace	0	0	259	0	259
Totals	1,922	2,898	9,849	3,232	17,901

At the end of 2013 the case backlogs were as shown in the table below.

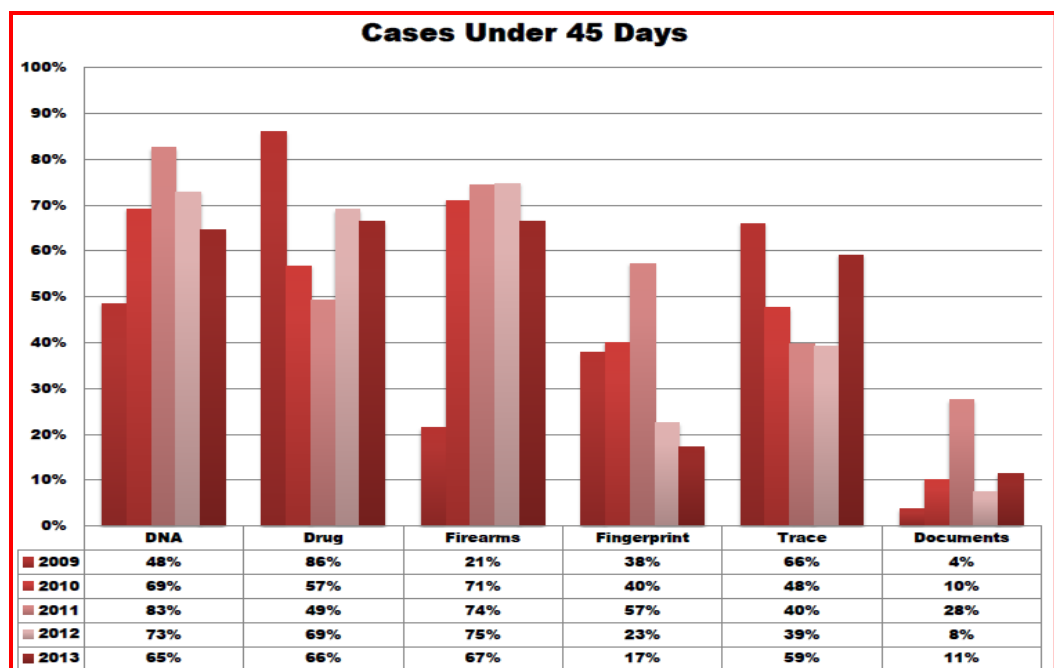
	<i>Evansville</i>	<i>Fort Wayne</i>	<i>Indianapolis</i>	<i>Lowell</i>	<i>Totals</i>
DNA	27	49	384	54	514
Documents	0	0	44	0	44
Drug	65	325	897	294	1581
Firearms	30	118	42	22	212
Fingerprint	17	204	297	65	583
Trace	0	0	44	0	44
Totals	139	696	1708	435	2978

Case Submissions, Completions & Backlog

As shown in the “Case Submissions, Completions, and Backlog” graph below, the Laboratory Division received 18,601 cases and completed 17,901 cases in 2013. The average turnaround time at the end of 2013 for completing a case was 47 days from submission, down from 52 days in 2012. The Laboratory Division has a long-term goal of having 90% of its backlog being analyzed in 45 days or less from the date of submission. The backlog is defined as any case submitted that has not been completed. The portion of cases by unit under 45 days old is shown in the graph at the bottom of the page.



Goal:
90% of the
cases
completed
in 45 days
or less.

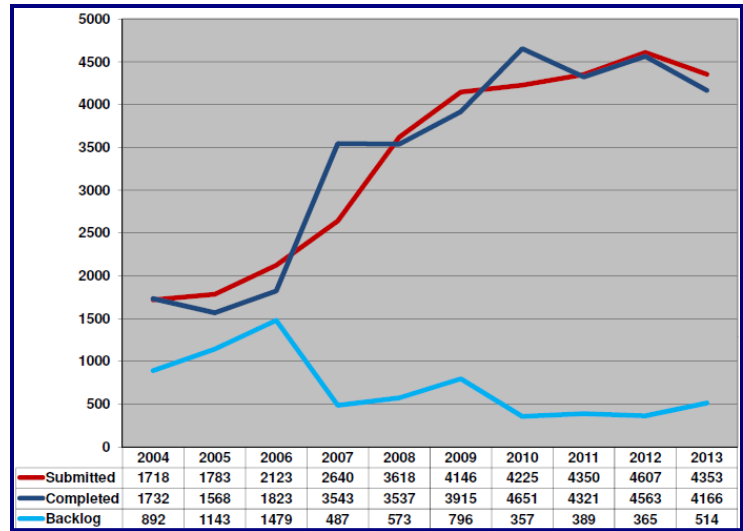


Biology Section

The Biology Section (54 staff) is organized into four casework units plus the Combined DNA Index System (CODIS) Unit. This Section conducts analysis of biological samples including identification of body fluids (serology), nuclear and YSTR DNA analysis, forensic relationship testing, blood stain pattern analysis, DNA analysis of convicted offender samples and searching the offender database for matching profiles.

The Section completed 4,166 cases in 2013 and 4,353 cases were submitted. This was the first decrease in the number of cases submitted for biological examination since 2002.

In 2013, the collection of offenders samples from both Department of Corrections and county facilities continued, bringing in 16,929 samples from previously untested convicted offenders. Over 20,000 offender samples were analyzed and entered into the database during the year, eliminating the backlog.



The Laboratory has received over 200,000 convicted felon DNA samples since 1996. Analysis was brought in-house in 2012 and the backlog was eliminated in 2013.

As a result of the above efforts a total of 548 separate criminal investigations were aided through CODIS during 2013, including the following violent offenses: 5 homicides, 1 death investigation, 27 robberies and 60 sex crimes. Types of hits included 5 National Forensic Hits, 133 National Offender Hits, 25 State Forensic Hits, and 385 State Offender Hits. This brings the grand total since Indiana began the CODIS program to 4,063 investigations aided.

In 2013 the Biology Section adopted new mixture interpretation guidelines and revised statistics methods that will allow analysts to draw conclusions on some complicated mixed DNA profiles that previously would have been deemed inconclusive.

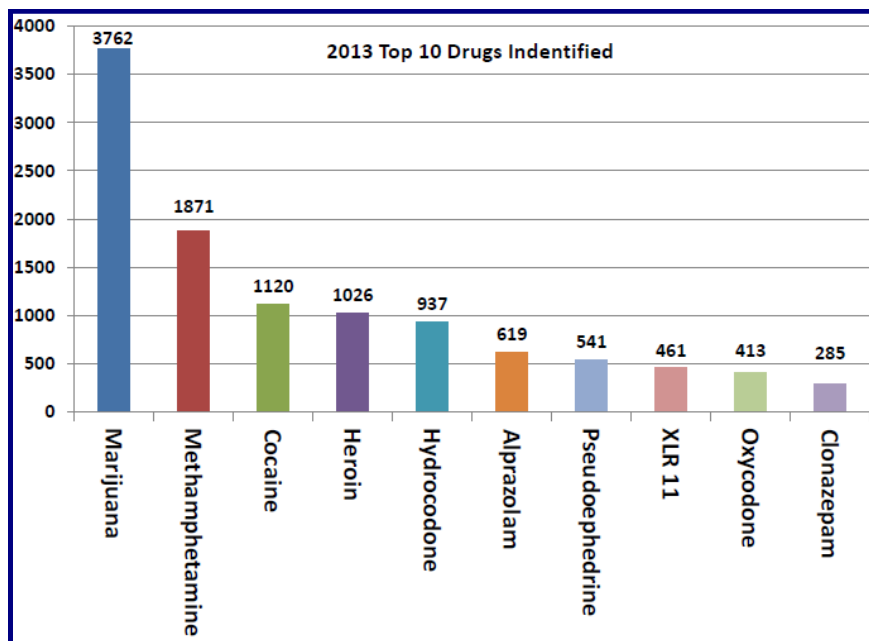
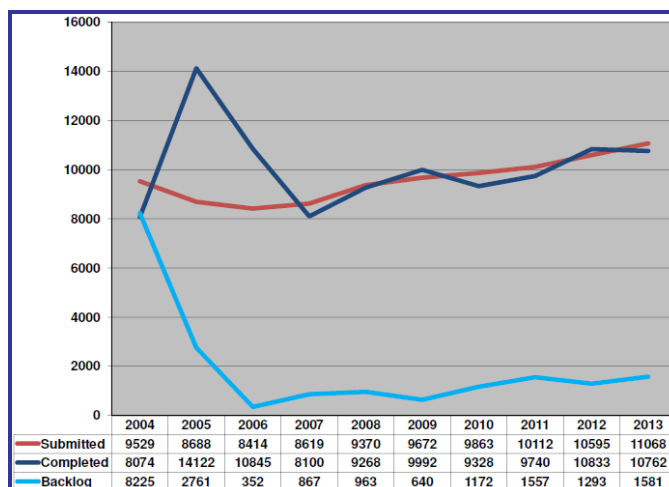
The Section successfully analyzed biological materials from many types of evidence. In one case a DNA profile developed from a broken piece of glass collected from an abandoned car containing the body of a homicide victim led to a CODIS hit. This information led to a confession and eventual guilty plea to the homicide. In another case DNA analysis of firearms aided the conviction of a man in the murder of his wife and two step children. DNA analysis linked blood collected in 2008 from a garage, stolen bicycle and two stolen vehicles at different crime scenes to the same source. In 2013 a CODIS hit led to an arrest for these crimes.

Drug Unit

The Drug Unit (20 staff) provides identification of controlled substances, non-controlled drugs of abuse, clandestine laboratory samples, and diluent materials found in drug preparations.

During 2013 the Unit analyzed 10,762 cases and received 11,068 cases, the highest number of cases submitted since 2002.

The Unit is active in the forensic community participating in the American Chemical Society (ACS), American Academy of Forensic Sciences (AAFS), Southern Association of Forensic Scientists (SAFS), Midwestern Association of Forensic Scientists (MAFS), American Board of Criminalistics (ABC), and Clandestine Laboratory Investigating Chemists Association (CLIC).



Synthetic drugs (“Spice”, “K2” and “bath salts”) and their various derivatives continue to be a challenge for the Unit. Enterprising chemists alter the chemical structure in attempts to circumvent the controlled substance statutes. In 2013, the Unit identified 18 new synthetic drugs. During the year, the Indianapolis Laboratory purchased a new Gas Chromatography-Infrared Spectrometer (GC-IR). This new instrument enhanced the Unit’s capability for identifying and differentiating between structurally similar substances such as synthetic drugs. Implementing this new technology required research, method development and validation for analysis, and analysts’ training.

Since 2010, heroin identifications has increased 126% and cocaine decreased by 38%. Below are photos of heroin samples identified by the Unit.

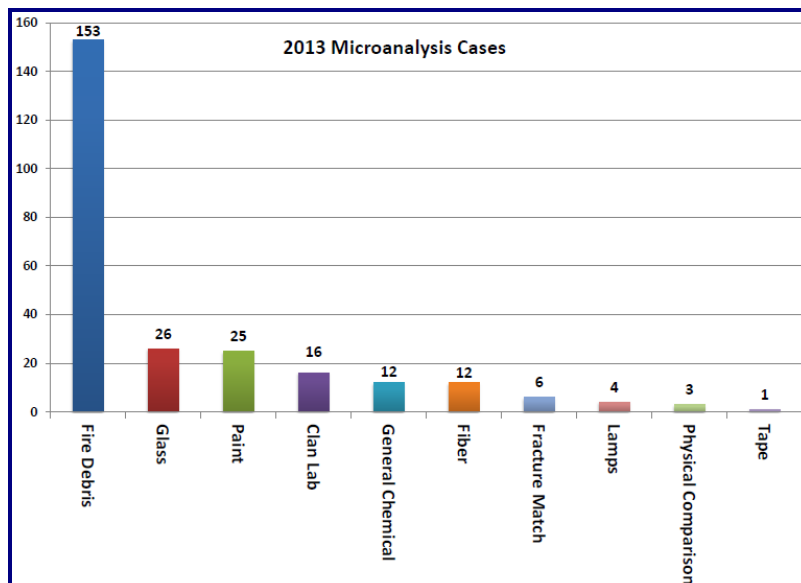
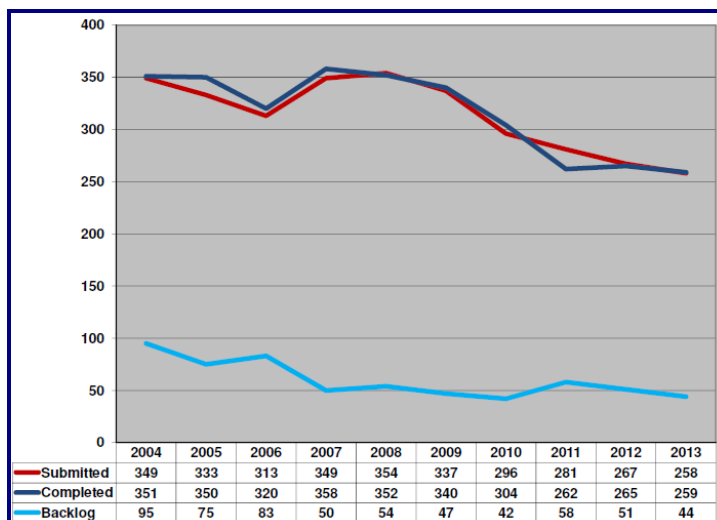


Microanalysis Unit

The Microanalysis Unit (5 staff) provides identification, analysis, and comparison of fibers, paints, tapes, glass, fire debris, plastics, automotive lamps, clandestine laboratory reagents, and unknown materials.

The Unit completed 258 cases during 2013 with a backlog of 44 cases at the end of the year. The backlog has remained below 60 cases since 2007.

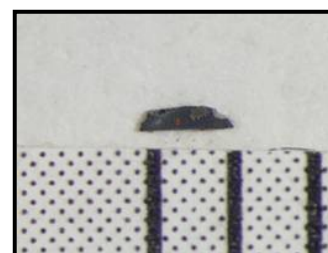
The Unit is active in the forensic community participating in the Scientific Working Group for Materials Analysis (SWGMA), the American Society of Trace Evidence Examiners (ASTEE), Midwestern Association of Forensic Scientists (MAFS) including one board member, American Board of Criminalistics (ABC), and the International Association of Arson Investigators (IAAI).



Associative evidence, like glass from a hit-n-run, can be valuable evidence in the investigation and prosecution of a case. The physical, optical, and elemental properties of the questioned glass are compared to the glass standards. There was a crash in Lake County where four county correctional officers were struck by an SUV that fled the scene, killing one in the crash. The suspect pled not guilty to charges including reckless homicide and criminal recklessness. A Forensic Scientist from the Unit analyzed microscopic pieces of glass collected from victim's jeans and compared

it to glass from the windshield, the passenger window glass and an outside mirror. The glass recovered from victim's clothing was found to be similar to the glass from the car.

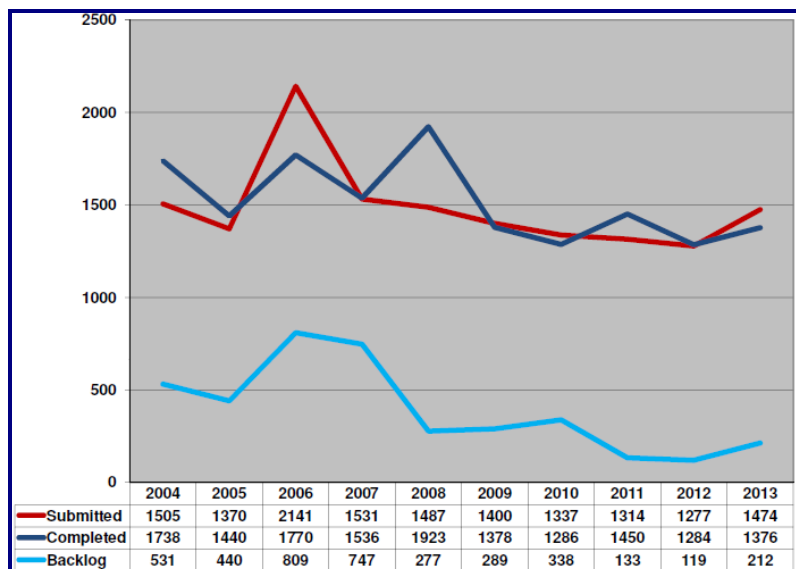
Other types of trace evidence that are microscopic in size can be analyzed as well. Here is a microscopic size paint chip. A small gray primer (1/4mm x 1/4mm) was enough for instrumental analysis with the scanning electron microscope (SEM) and the Fourier Transform Infrared spectrometer (FT-IR).



Firearms Unit

The Firearms Unit (9 staff) provides comparison and identification of fired bullets and cartridge cases. The Unit also provides examination and comparison of toolmark evidence, Integrated Ballistics Identification System (IBIS) database entry/inquiry for unsolved firearms related cases, muzzle to target distant determination, serial number restoration, function testing of firearms, and characterization of recovered ammunition components. Members of the Unit also participate on the Superintendent's Advisory Committee on Firearms/ Ammunition Selection by evaluating new ammunition and firearms for future procurement by the Indiana State Police. This year these committee members tested and evaluated the Sig Sauer .45 caliber pistol.

During 2013 the Unit worked 1,376 firearm, toolmark, serial number, and ballistic imaging cases while receiving 1,474 cases. The 15% increase in cases submitted this year was due in part to efforts by the firearms examiners to more fully utilize National Integrated Ballistic Information Network (NIBIN).



The Unit is active in the forensic firearms community with members serving as elected board members or on committees for the Association of Firearm or Toolmark Examiners (AFTE) including President and Treasure-elect, the Scientific Working Group for Firearms and Toolmarks (SWGgun), Technical Working Group for Comparative Sciences and NIBIN Users Conference.

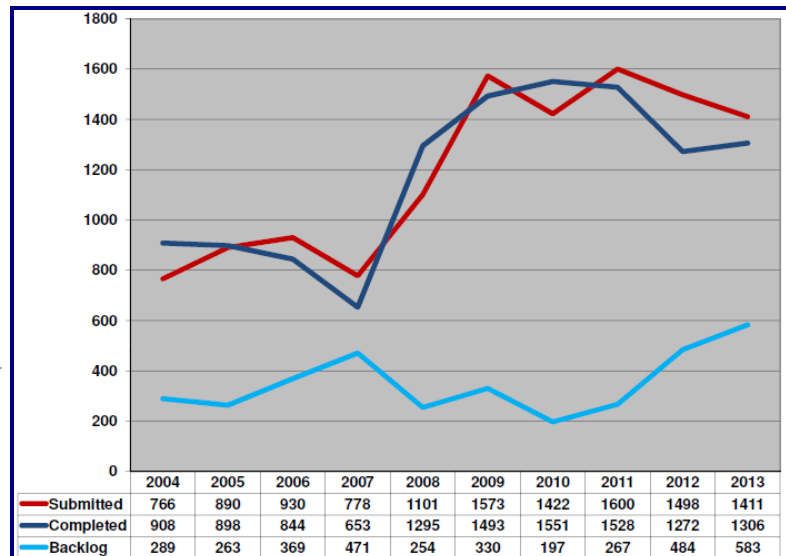
The NIBIN program automates ballistics evaluations and provides investigative leads in a timely manner. NIBIN is the only interstate automated ballistic imaging network in operation in the United States. In 2013 Allen County (Fort Wayne) Indiana had its deadliest year on record with a total of 45 homicides.



The majority of these homicides were the result of firearm gang violence. In addition to the potential of NIBIN as an investigative tool for solving homicides, the case linkage can also set the foundation for federal racketeering charges for gang members. The firearm examiners at the Fort Wayne Laboratory created several diagrams showing crime linkage and organized informational meetings with the Fort Wayne Police Department. This activity increased the backlog; however, the hits generated allowed for the arrest of many violent gang members. Last year alone the Fort Wayne Laboratory confirmed 47 hits. Another 5 were generated by the Indianapolis Laboratory which brought the total to 52 NIBIN hits in 2013.

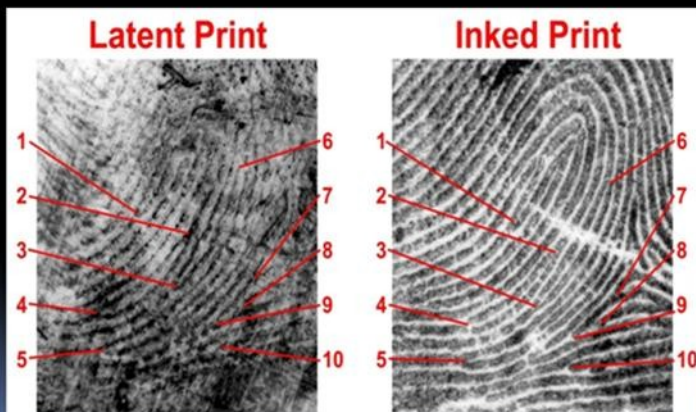
Latent Print Unit

The Latent Print Unit (12 staff) examines and compares unknown to known dermal friction ridge detail. Processing techniques include physical, chemical and fluorescent development of latent print evidence. When a case is submitted without a suspect, the unknown fingerprints are entered into the Automated Fingerprint Identification System (AFIS, state system) and the Integrated Automated Fingerprint Identification System (IAFIS, federal system) databases. Potential candidates are generated by the system, but the comparison, identification and verification processes must be made by a forensic scientist. This year the Indiana State Police implemented new upgraded AFIS and IAFIS systems. The Latent Print Unit can now access archive files from AFIS/IAFIS for comparison purposes. This streamlines the process and allows casework and results to be completed much faster. The Unit also conducts examinations of footwear and tire impressions. The Unit has access to a Shoeprint Image Capture and Retrieval database known as (SICAR). This system stores shoeprint sole patterns and tire tread patterns for reference. Footwear and tire impressions recovered from crime scenes can be searched in SICAR with the potential of locating a particular manufacturer of a shoe or tire which can provide information to the investigator. The Unit also assisted with over 500 CODIS hits.



The Unit worked 1,306 cases during 2013. Four analysts completed training and began casework in 2013. The Unit had 183 AFIS hits in 2013 even though the system was down for several months due to being updated. Since 2002 a total to 793 AFIS identifications have been made.

Comparison of Latent Prints



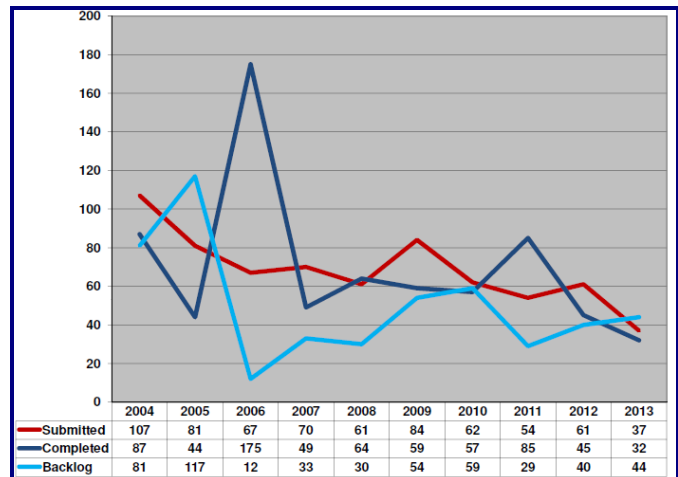
The Latent Print Unit is active in the forensic community participating in the International Association for Identification (IAI), the Indiana Division of IAI including President, Secretary/Treasurer, Board Member and News Letter Editor.

The Latent Print Unit analyzed evidence in a case of a young woman murdered over a \$65 debt. The victim was stabbed with a shard of glass and strangled. The Unit worked closely with the DNA Unit and latent impressions were developed and identified to the suspect on the bloody glass and a tissue box. The suspect pled guilty and received a 45 year sentence.

Document Unit

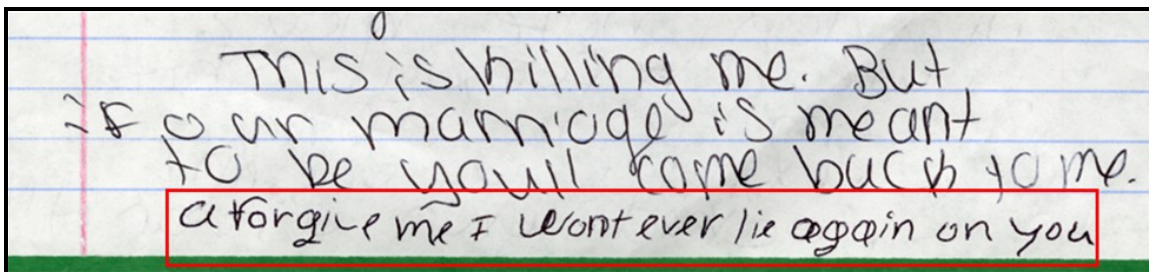
The Document Unit (3 staff) provides a range of examinations in order to answer questions about the authorship, authenticity, and background of documents. These types of document examinations include: the comparison of handwriting, hand printing, and signatures to known writing in order to identify or eliminate a subject as the writer; the development and decipherment of indented writing impressions; physical match examinations of torn, cut, or shredded documents; the classification and comparison of inks and writing instrument; the examination of printing processes to determine source or authenticity; detection of alterations, additions, deletions, or substitutions; decipherments of altered, erased, obliterated, charred, or water-soaked documents; and the determination of the sequence of events in the creation of a document.

The Unit completed 32 cases in 2013 while receiving 37 cases. The Unit currently has one supervisor, one examiner, and a trainee, who joined the Unit in April.



The Unit is active in the forensic community by participating in the American Society of Questioned Document Examiners (ASQDE), Scientific Working Group for Document Examination (SWGDOC), and Midwestern Association of Forensic Scientists (MAFS). The 71st Annual General Meeting for the ASQDE was held in Indianapolis for 87 participants from all over the world. One member of the Unit handled all of the local arrangements for the meeting as the Site Chair, while another co-presented a workshop to trainees on anonymous letters.

The Unit aided in a variety of investigations in 2013. In one case, numerous letters were submitted, purportedly written by a victim of an assault, but contained questioned writing stating that the victim was lying. The victim admitted to writing the letters, but not the questioned writing. After the document examination, it was concluded that the portions of the questioned writing were inserted, and the questioned writing was an attempt to simulate genuine writing of the victim. Upon being presented with the Laboratory Report, a plea deal was reached.

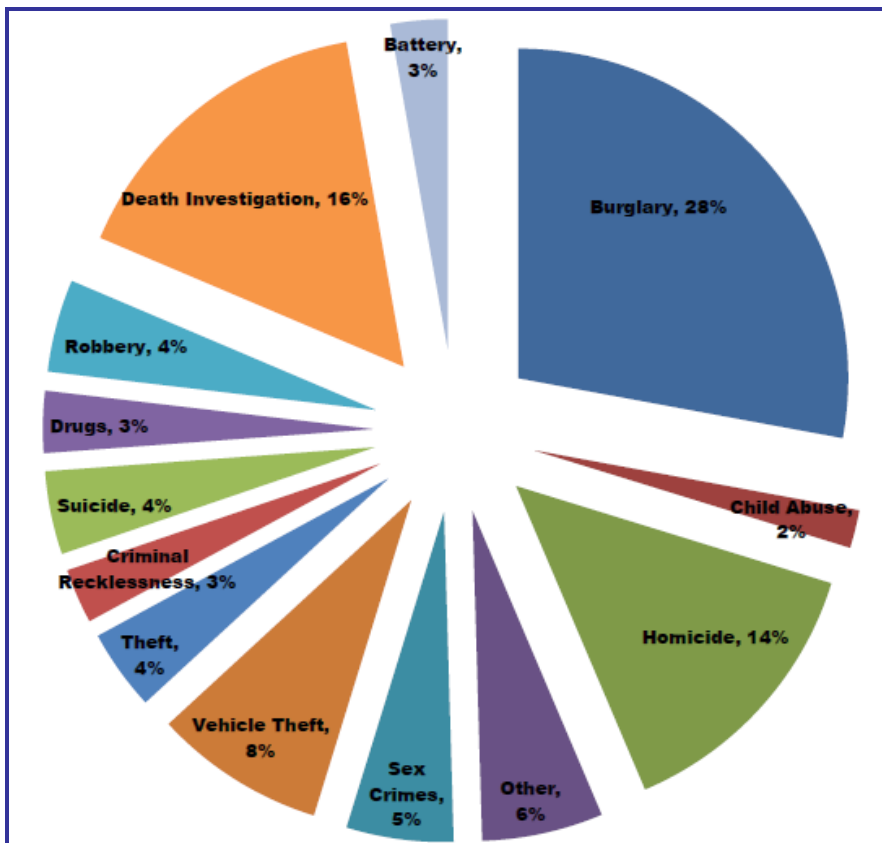
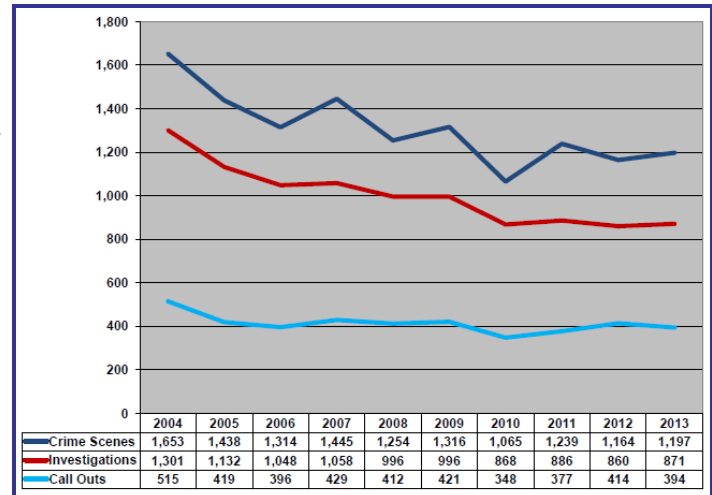


A large-scale voter fraud case dominated the Unit from fall of 2012 through spring of 2013, which led to the successful conviction of four suspects in April. In this case, genuine voter petitions were used as models to generate over 400 fraudulent signatures, names, and addresses in two different sets of petitions.

Crime Scene Investigation & Evidence

Crime Scene Investigators (24 staff) and Evidence Clerks (19 staff) provide technical crime scene processing, evidence storage and security, and court testimony as required. The Crime Scene Investigators' (CSIs) duties include identifying and collecting potential evidence, reconstructing the events of the crime, and physically linking potential suspects to the crime. Evidence Clerks are responsible for logging and tracking the chain-of-custody of evidence once it comes into the laboratory's possession, organizing storage of the evidence so it can be retrieved when needed, and the release or destruction of evidence as necessary.

The CSIs worked 871 investigations involving 1,197 crime scenes. They were called out 394 times with 2,779 hours of forensic overtime and attended 168 autopsies. They testified 68 times with 646 court hours.



Evidence Clerks handle thousands of items of evidence throughout the year either from accepting evidence from contributors at the laboratories or from state police officers for storing and analysis. The Evidence Clerks are responsible for the storage of over 241,000 individual items of evidence.

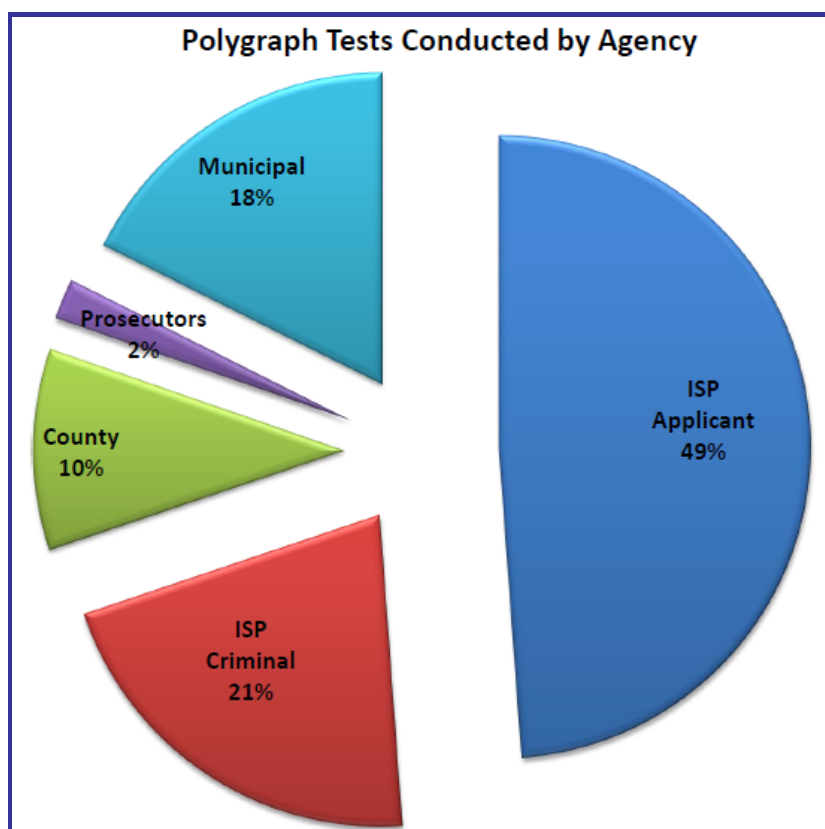
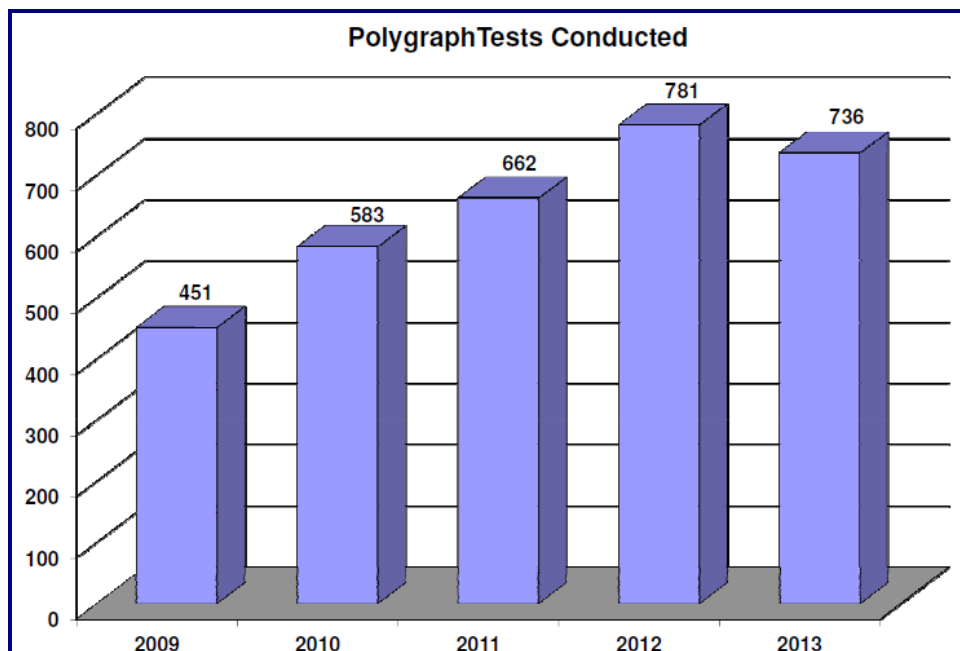
The Unit is active in the forensic community by participating in the Scientific Working Group on Imaging Technology (SWGIT) and the Indiana Division of the International Association For Identification (IN IAI).

As noted in the chart to the left, a wide variety of crime scenes were worked by the Crime Scene Investigators. Burglaries accounted for 28% of the cases and homicides, suicides, and death investigations combined for an additional 34%.

Polygraph Unit

The Polygraph Unit (6 staff) provides polygraph services to the Indiana State Police and other state, county, and local law enforcement agencies. Polygraph is used very extensively in child molestation investigations where a delay in reporting often results in no physical evidence being available.

The Unit conducted 736 polygraph tests during 2013. The Unit developed 38 additional leads, cleared 59 cases, obtained 36 confessions and had 19 significant admissions.



The proportions of the tests conducted for the State Police, county and municipal agencies and prosecutors in 2013 are shown in the chart to the left.

The Polygraph Unit also maintained the Department's leadership role in professional organizations by having its examiners elected in leadership positions in the Indiana Polygraph Association including President and Vice-President. This organization is devoted to professional training and enhanced standards of practice for the polygraph field.

The Polygraph Unit worked behind the scenes in many investigations and was able to help conclude several unique as well as high profile cases.

Photography Unit

The Photography Unit (2 staff) provides photography services for all ISP personnel and maintains an electronic photo storage system (Mideo) for all Department criminal investigations and crashes. Digital images are uploaded, cataloged and archived for future reference from 14 ISP Districts. The Mideo photo database allows images to be previewed at the district locations by troopers and investigators. This year 193,285 digital images were entered into the database. The Photography Unit printed 445 investigative color prints and 3,512 reprints. Images are now routinely provided on CDs instead of printed copies which results in a substantial cost savings. The Photography Unit provided 708 CDs for investigations and to insurance companies. The Photography Unit also provided photographic services for over 35 cold cases.

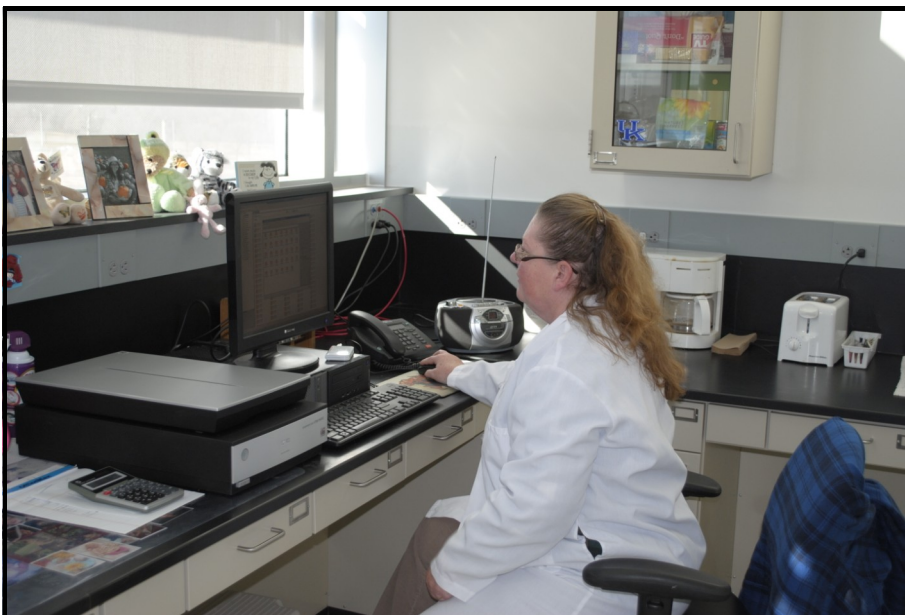
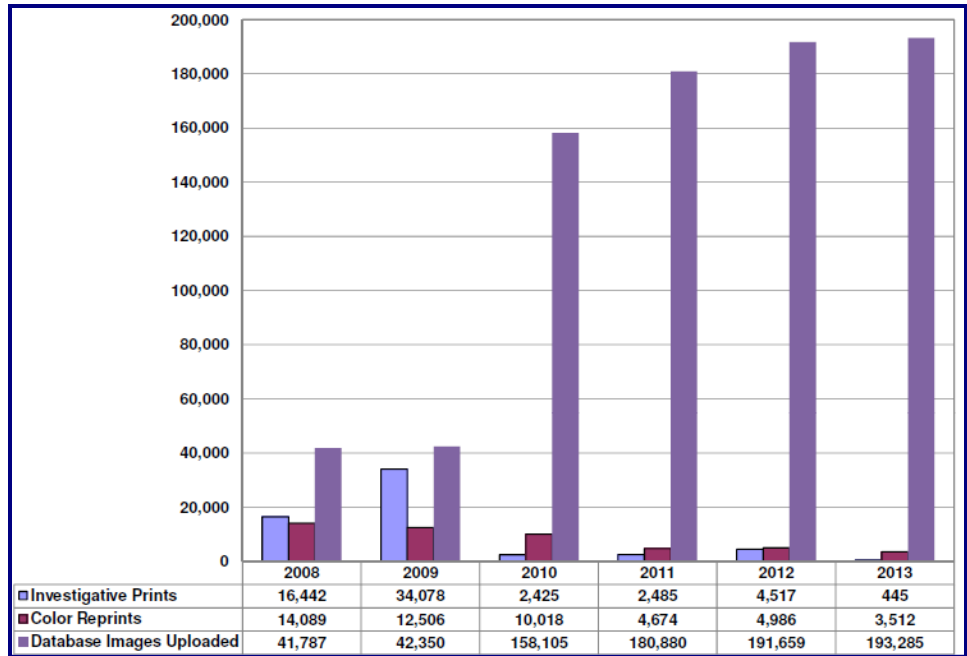


Photo of a Photographic Technician.

The Photography Unit provided assistance in researching and purchasing over 600 digital cameras. As of October 2013, the ISP has gone completely digital by taking all film cameras in the field out of service. These cameras were issued to Troopers to document criminal investigations, crashes and all Department related activities. The new equipment allows Troopers to share critical information electronically such as suspect photographs with other law enforcement agencies and to link criminal activity and suspects.

Quality Assurance & IT Support

The **Crime Scene Quality Assurance Unit** (3 staff) administers comprehensive training in crime scene processing to local law enforcement agencies as well as Indiana State Police Crime Scene Investigators. The Unit assists the Indiana Law Enforcement Academy (ILEA) in certification of crime scene investigators for agencies throughout the state. The Unit also provides specialized training to other agencies upon request. Unit members are often called upon to give instruction at the ILEA to both the Indiana State Police Recruit School and the Basic Course.

The ISP Evidence System Quality Assurance Program annually audits each of the fourteen ISP district evidence storage facilities. Additionally, the Unit semi-annually assesses the work of each of the twenty-four Indiana State Police Crime Scene Investigators. Each of the ISP CSIs are given a proficiency test annually to ensure their competency and that their equipment is functioning properly.

To provide continuing education to the ISP CSIs this year, the Quality Assurance Unit organized two 40-hour training sessions for Bloodstain Pattern Analysis.

The **Forensic Analysis Quality Assurance Unit** (2 staff) ensures compliance to laboratory and accreditation quality assurance standards. The Unit maintains updated and secure quality assurance documentation, oversees the implementation and continued corrective action compliance, ensures laboratory adherence to proficiency testing and witness critique requirements, and develops and conducts quality assurance related training for laboratory staff.

The four regional laboratories are accredited by the American Society of Crime Laboratory Directors/ Laboratory Accreditation Board (ASCLD/LAB), the longest established crime laboratory accreditation program in the country. ASCLD/LAB accreditation is a voluntary program in which a crime laboratory that participates must demonstrate that its management, personnel, operational and technical procedures, equipment, and physical facilities meet established quality standards. This Unit participates in the Association of Forensic Quality Assurance Managers (AFQAM) including President Elect and the American Society for Testing and Materials - International (ASTM-I).

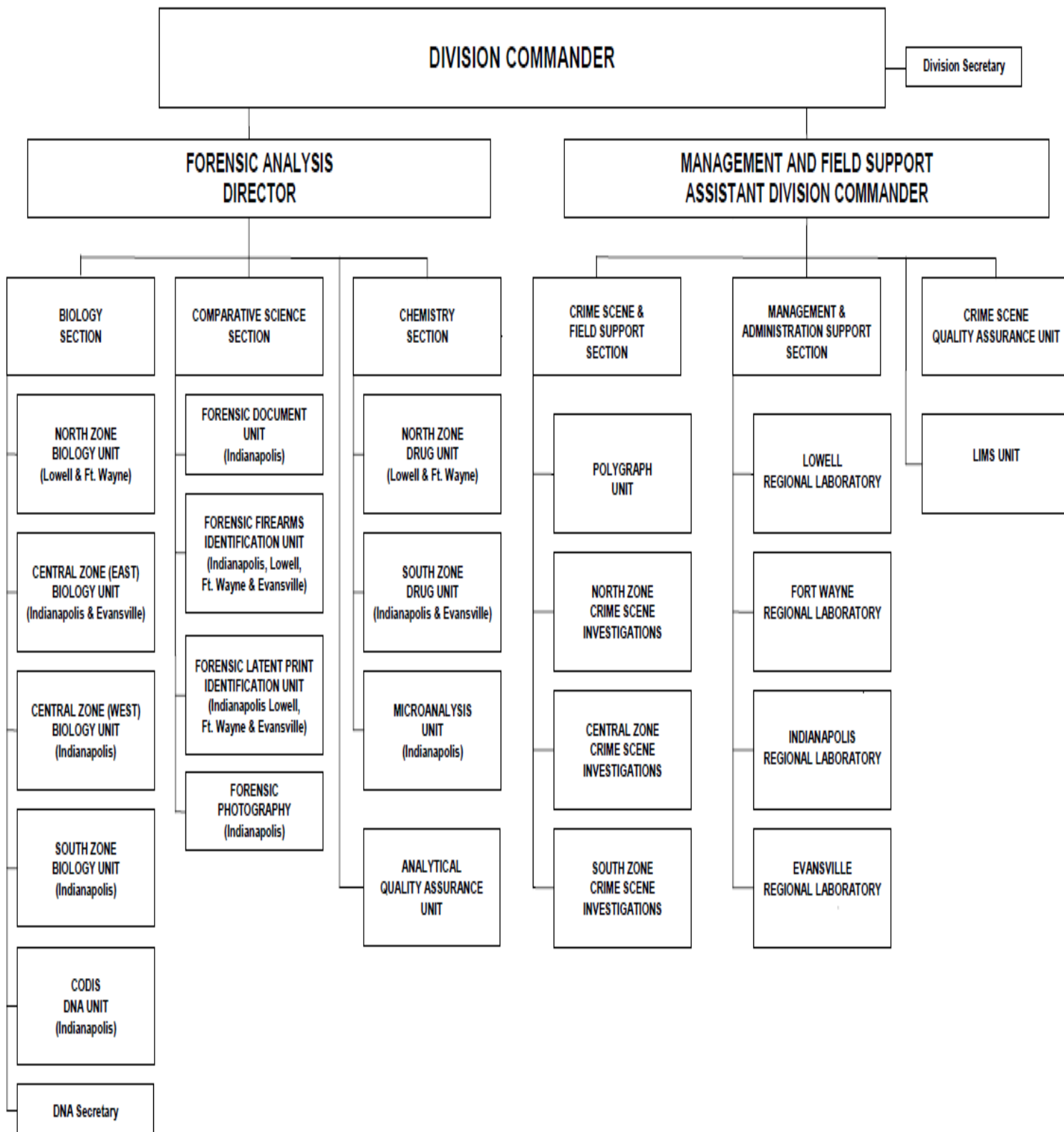
The **Laboratory IT Unit** (2 staff) has the primary duty of maintaining and administering the Laboratory Information Management System (LIMS). The LIMS tracks all evidence currently held by the Indiana State Police, all analytical results, records and reports. This system is integrated with a web based reporting system called iResults, which provides Certificates of Analysis to contributors.

The Unit supports Laboratory Division personnel in all 4 regional laboratories and 11 district locations. The Unit also maintains and supports a digital archive (Mideo) for all ISP photos taken of accidents and crime scenes, as well as a digital workflow system utilized by the Latent Print and Document Units.

This year the Unit assisted with a Computer Refresh project, where all Division computers were replaced. This involved a change in computer operating system, which required user training and adjustments to LIMS and other programs to maintain functionality.

The Unit is called upon to provide assistance troubleshooting and maintaining other systems used by the Laboratory Division, including CODIS, AFIS, IBIS, analytical instrumentation, door access/ security, phone system, and camera surveillance.

Organizational Chart



Contact Information

Indianapolis Regional Laboratory

550 West 16th Street, Suite "C"
Indianapolis, IN 46202

Laboratory Manager: Mr. Scott Owens
sowens@isp.in.gov
317-921-5300
866-855-2840

Lowell Regional Laboratory

1550 East 181st Avenue
Lowell, IN 46356

Laboratory Manager: Mr. Paul Fotia
pfotia@isp.in.gov
219-696-1835
877-874-0009

Fort Wayne Regional Laboratory

5811 Ellison Road
Fort Wayne, IN 46804

Laboratory Manager: Mr. John Vanderkolk
jvanderkolk@isp.in.gov
260-436-7522
800-552-0976

Evansville Regional Laboratory

19411 Highway 41 North
Evansville, IN 47725

Laboratory Manager: Mr. Joe Vetter
jvetter@isp.in.gov
812-867-3157
800-852-3970

We're on the web!

<http://www.in.gov/isp/labs/>